

VSEPR



According to VSEPR theory, the repulsion between electron pairs causes molecular shapes to adjust so that the valence-electron pairs stay as far apart as possible.

The valence-shell electron-pair repulsion theory, or **VSEPR theory**, explains the three-dimensional shape of methane.

When a central atom has ^{*}no^{*} ^{~~~~~} lone pairs the names of the shapes are:

AX_2 AX	Linear
AX_3	Trigonal planar
AX_4	Tetrahedral
AX_5	Trigonal bipyramid
AX_6	Octahedral

VSEPR-

Name:

Shape- Lewis Number of LP Number of structural diagram Polar/NP
General Formula diagram around the central atom around the central or shape diagram

AX ₄ ex CH ₄		0	4		NP
AX ₃ E ex NH ₃		1	3		P
AX ₂ E ₂ ex H ₂ O		2	2		P
AX ₃ ex BH ₃		0	3		NP
AX ₅ ex NCl ₅		0	5		NP
AX ₆ ex SH ₆		0	6		NP

AX Br ₂		LP N/A	BP N/A	Br-Br	NP
HCl		no central atom linear		H-Cl	P

AX ₂ CO ₂		LP 0	BP 2	O=C=O	NP
CaCl ₂		linear			